



U.S. Department of Energy
Energy Efficiency and Renewable Energy

federal energy management program

THE FEDS.....WHAT WE'RE DOING AND WHERE WE'RE HEADED

**National Institute of Standards and Technology
Physical Structure and Systems Interagency Working Group**

**White House Conference Center
Washington, D.C.**

October 15, 2004

Beverly Dyer, LEED A.P.
Federal Energy Management Program, Department of
Energy



- EERE's mission is to strengthen America's energy security, environmental quality, and economic vitality in public-private partnerships that:
 - Enhance energy efficiency and productivity;
 - Bring clean, reliable and affordable energy technologies to the marketplace; and
 - Make a difference in the everyday lives of Americans by enhancing their energy choices and their quality of life.



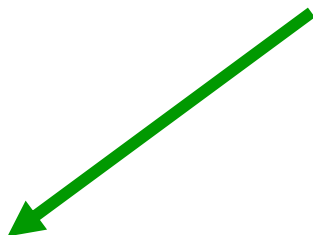
Federal Energy Management Program increases energy security and reduces energy cost and the environmental impact of government by promoting:

- Energy efficiency and water conservation
- Use of distributed and renewable energy
- Sound utility management at Federal sites



Interagency Sustainability Working Group (ISWG)

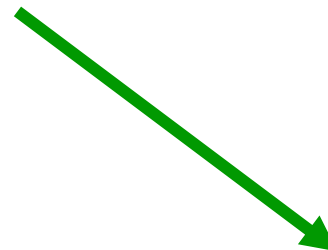
MISSION



**Exchange
information
among Federal
agencies'
sustainable
design activities**



**Adopt sustainable design
practices in new construction
and major renovations**

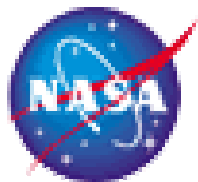


**Identify and propose
solutions to barriers
for adoption of
sustainable
design**



U.S. Department of Energy
Energy Efficiency and Renewable Energy

ISWG Agency Participants





ISWG Composition



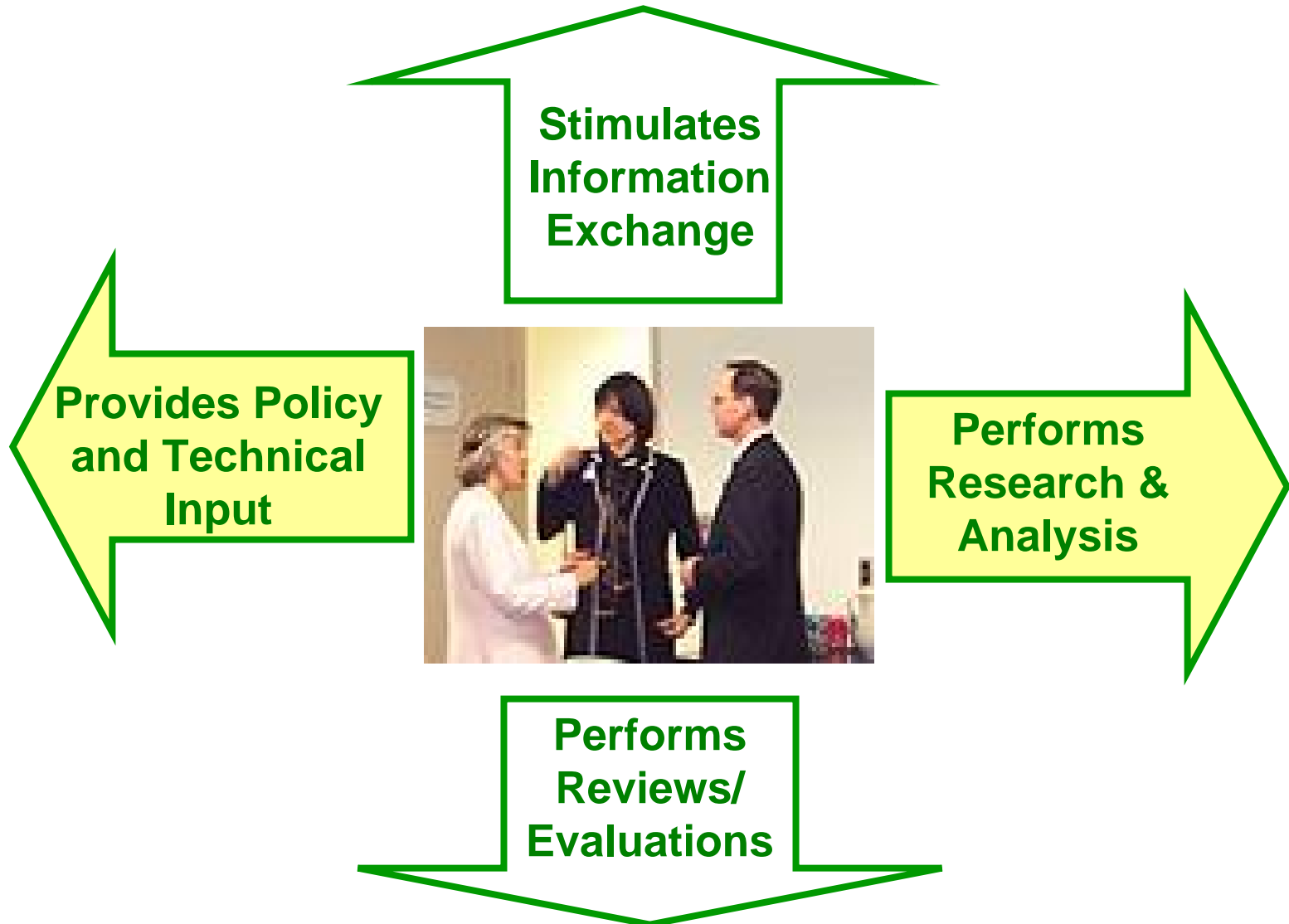
Chaired by
DOE/FEMP

Over 200
officials
representing
broad cross
section of
Federal
agencies

40-50 “active”
members
participate in
working group
meetings on a
regular basis



ISWG's Areas of Focus





LEED – Specific Policies

Agency	LEED Goal	Goal Notes	LEED-certified projects*
Commerce - National Weather Service	Silver	"Shall strive for minimum of LEED Silver"	1 Certified (v2); 1 Silver (v2)
Defense - Pentagon	Certified		2 Certified (v2)
Defense - Air Force	Certified	Required by FY '09, self-certified	1 Bronze (v1)
Defense - Army	Gold*	*SPiRiT, equivalent to LEED silver; required by FY '06	
Defense - Navy	Certified	Required	1 Certified (v1)
Energy	—		2 Silver (v2); 1 Certified (v2) ⁸



LEED – Specific Policies

Agency	LEED Goal	Goal Notes	LEED-certified projects*
EPA	Silver	Required by 2005	1 Gold (v1); 1 Gold (v2)
GSA	Certified	Required; Silver recommended	3 Certified (v2)
Interior	—	"Incorporating" LEED criteria, no goal	1 Certified (v2)
NASA	—	Silver baseline, Gold where cost-effective	
State	—	LEED elements written into RFPs & design guides	
Transportation - FAA	—		1 Gold (v2)



National Oceanic and Atmospheric Administration

NATIONAL WEATHER SERVICE CARIBOU, MAINE LEED SILVER CERTIFIED



- 50% of building materials recycled content
- Natural daylighting primary source of daytime lighting
- 75% of total project waste diverted



National Oceanic and Atmospheric Administration

West Coast/Alaska Tsunami Warning Center Palmer, Alaska LEED Certified

- 30 percent less energy than ASHRAE 90.1 guidelines
- High efficiency HVAC systems
- Over 75% of the waste generated during construction demolition recycled





PHYSICAL FITNESS CENTER Barksdale AFB, LA LEED BRONZE CERTIFIED



Recycled Rubber Flooring



Reflective Parking Surface



Recycled Plastic Lockers



Low VOC Paints, Adhesives, Sealants



Bachelor Enlisted Quarters Great Lakes Training Center Great Lakes, IL LEED Certified

- Reused Site of outdated barracks and recreation facilities
- Exceeds ASHRAE 90.1-1989 prescriptive envelope standards for Chicago Area by 24% through use of R-23 Wall and R-30 roof insulation and reflective roof
- 31% of materials by cost produced locally, including all concrete





Department of Defense – Pentagon Renovation Program

Metro Entrance Facility Arlington, VA LEED Certified



- ENERGY STAR® roof-compliant and low emissivity roofing for minimum of 75 percent of the roof
- Benches constructed from Forest Stewardship Council wood
- Prevented loss of soil during construction



Department of Defense – Pentagon Renovation Program

Athletic Center Arlington, VA LEED Certified

- Green roof provides outdoor garden space, improved insulation, natural water filtration system, and reduced stormwater runoff
- 75 percent heat recovery from heat exchanger for lap pool and spa
- Bamboo flooring for auditorium stage and waiting area





**Baca/Dlo'ay azhi Community School
Prewitt, NM
LEED Certified**



- Energy automation systems
- Natural daylighting devices
- Native plants landscape
- Recycled materials



Argonne National Laboratory Warehouse Space Argonne, IL LEED Silver Certified

- Energy-efficient mechanical systems
- Rooftop rain catchment system



- Recycled building materials
- Reduced water requirements by an estimated 40% by native landscaping



ORNL East Campus Modernization Oak Ridge, TN LEED Certified



- Reflective roof
 - Primary-secondary chilled water loops and high-efficiency chillers
 - Building automation, monitoring and controls
-
- Low amount of impervious surfaces and native or adaptive species
 - 90% of furniture installed with low VOC emissions



Bonneville Power Administration, Ampere Annex Vancouver, WA LEED Silver Certified



- Overall 21.85% energy savings compared to ASHRAE 90.1-1999
- Water use reduction of 45% through water-efficient fixtures
- 91% of construction demolition and debris reclaimed and recycled
- 100% of spaces with views to the outdoors



South Rim Maintenance and Warehouse Facility Grand Canyon, AZ LEED Certified

- Recycled materials
- Insulated building envelopes
- Optimal indoor air quality
- Minimized vegetation cleared from the site





Seattle Terminal Radar Approach Control Facility Burien, WA LEED Gold Certified



- 33% water use reduction
- 14% energy savings
- 91% construction waste diversion
- 129% weighted average recycled content materials
- 49% locally fabricated manufactured materials
- 60% FSC-certified wood products
- 80% daylit spaces
- 91% exterior view spaces



New England Regional Laboratory Chelmsford, MA LEED Gold Certified



- 100% green power from wind power
- Over 50% of solid waste generated from construction diverted from the landfill and recycled
- Waterless urinals



Kansas EPA Laboratory Kansas City, KS LEED Gold Certified



**72% of construction debris
diverted from landfills**



Clerestory windows



Energy-Efficient small water-cooled chillers



Xeriscaping



Federal Courthouse Building Youngstown, OH LEED Certified



- 600,000 pounds of recycled concrete crushed and reused
- 22% in heating costs and 10% in electricity bills saved
- Reused earth and foundation materials excavated from the original site, saving over \$70,000



Child Care Center Woodlawn, MD LEED Certified



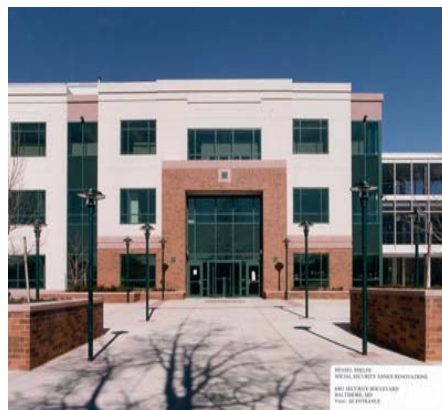
- Over 50% of building materials recycled content
- Water efficient landscaping reduced runoff by 50%
- Alternative and public transportation
- 7% increase in boiler efficiency



Annex Building Renovation Baltimore, MD LEED Certified



**Total energy savings of
12% below ASHRAE
90.1-1999**



**77% of building's exterior
and 76% of interior
construction materials
reused**



**79% of construction
materials recycled/salvaged**



Installation Communications Facility, Fort Gordon, GA SPIRIT

- Energy Star Roof
- Indigenous Landscape – No Irrigation
- 40% Energy Use Reduction
- Recycled Materials
- Mechanical Ventilation to ASHRAE Standards
- Individual Room HVAC Control



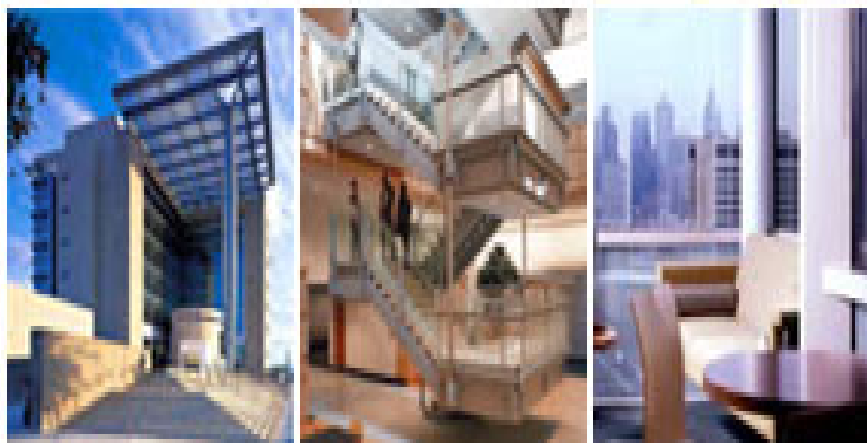


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FEDERAL SUSTAINABLE DESIGN IMPLEMENTATION TOOLS

Welcome to the Whole Building Design Guide

A Building Professional's
Gateway to Up-to-Date
Information on Integrated,
'Whole Building' Design
Techniques and Technologies



www.wbdg.org/



Office of the Deputy
Secretary of Defense
for Installations



Air Force Civil
Engineer Support
Agency



General
Services
Administration



Army Corps of
Engineers



Naval Facilities
Engineering
Command



Department of
Energy



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FEDERAL SUSTAINABLE DESIGN IMPLEMENTATION TOOLS



U.S. General Services Administration

Project Planning Tools

Tools that simplify building project delivery.

www.projectplanningtools.org/

High Performance
Buildings

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Performance Buildings

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by project name

by owner

by location

by building type
and size

list all 68 projects
detailed search

www.eere.energy.gov/buildings/highperformance/case_studies/

SUSTAINABLE FEDERAL FACILITIES

A Guide to Integrating Value Engineering, Life-Cycle
Costing, and Sustainable Development



AUTHORED BY
THE FEDERAL FACILITIES COUNCIL AD HOC TASK GROUP ON INTEGRATING
SUSTAINABLE DESIGN, LIFE-CYCLE COSTING, AND VALUE ENGINEERING
INTO FACILITIES ACQUISITION

FEDERAL FACILITIES COUNCIL TECHNICAL REPORT No.142
NATIONAL ACADEMY PRESS
Washington, D.C.
2001

<http://books.nap.edu/books/0309072999/html/index.htm>

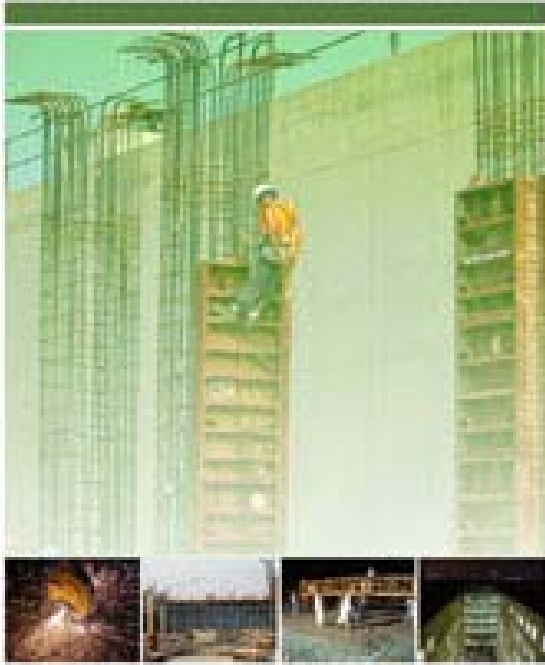


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FEDERAL SUSTAINABLE DESIGN IMPLEMENTATION TOOLS



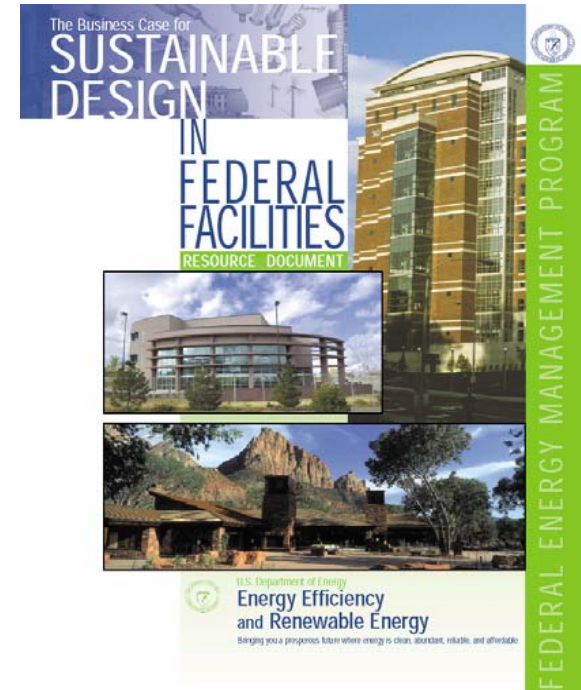
FIELD GUIDE FOR SUSTAINABLE CONSTRUCTION



WBDG Whole Building Design Guide



**DRAFT Federal Guide
for Green Construction
Specs
Sponsored by U.S.
Environmental
Protection Agency**



<http://renovation.pentagon.mil/sustainfieldguide.htm>

www.wbdg.org/design/index.php?cn=4.3.4&cx=0

www.eere.energy.gov/femp/technologies/sustainable_federalfacilities.cfm



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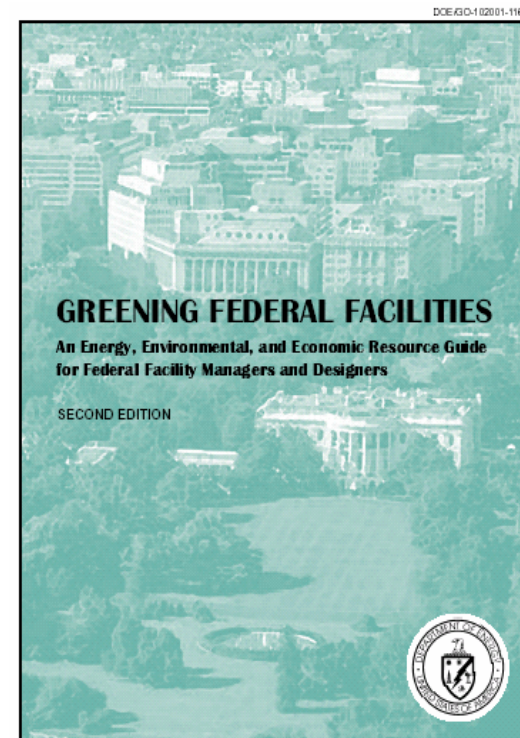
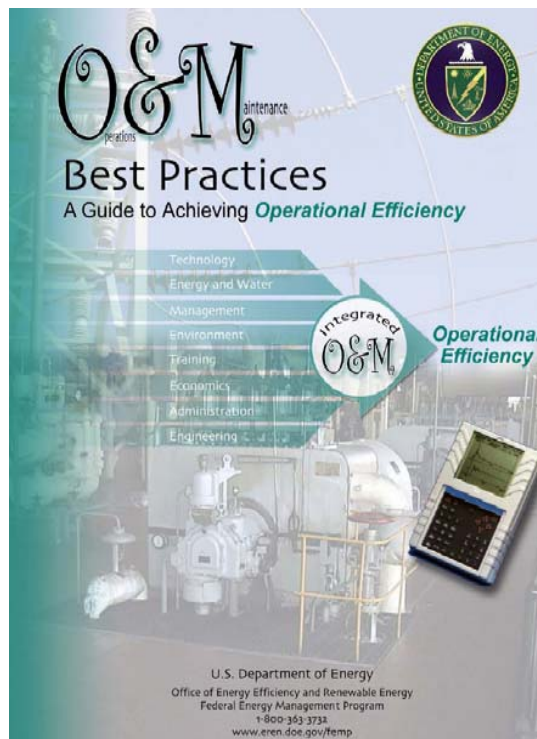
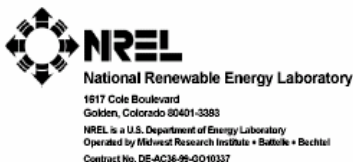
August 2003 • NREL/BK-710-33425

A Handbook for Planning and Conducting Charrettes for High-Performance Projects

Gail Lindsey, FAIA
Design Harmony, Inc.

Joel Ann Todd
Environmental Consultant

Sheila J. Hayter
National Renewable Energy Laboratory



www.eere.energy.gov/buildings/highperformance/pdfs/charrette_handbook/33425rep.pdf

www.eere.energy.gov/femp/pdfs/omguide_complete.pdf

www.eere.energy.gov/femp/technologies/sustainable_greening.cfm



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FEDERAL SUSTAINABLE DESIGN IMPLEMENTATION TOOLS

FEDERAL ENERGY MANAGEMENT PROGRAM

DOE/EE-0249



Low-Energy Building Design Guidelines

Energy-efficient design for new Federal facilities

**[www.eere.energy.gov/femp/
pdfs/25807.pdf](http://www.eere.energy.gov/femp/pdfs/25807.pdf)**

Office of Federal Environmental Executive's Federal Green Building Report

**[www.ofee.gov/sb/f
gb.html](http://www.ofee.gov/sb/fgb.html)**



Sustainable Federal Buildings Database

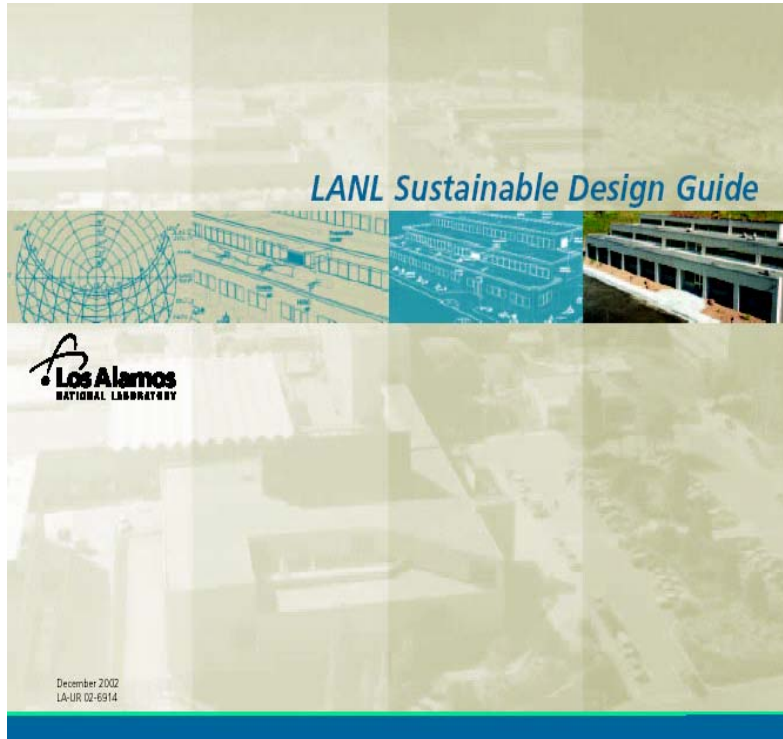
**Sponsored by the DOE Federal
Energy Management Program**

www.wbdg.org/ccbref/sfb.php

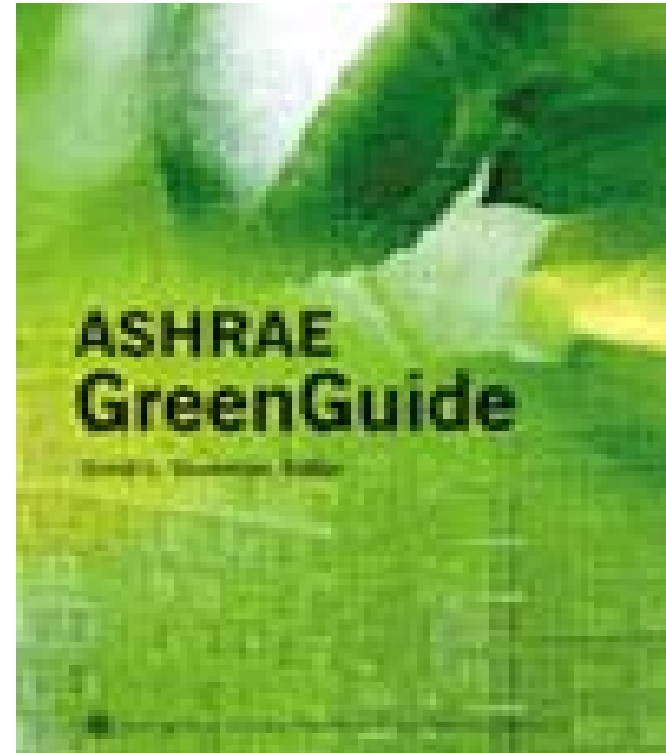


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FEDERAL SUSTAINABLE DESIGN IMPLEMENTATION TOOLS



www.eere.energy.gov/buildings/highperformance/lanl_sustainable_guide.html



www.ashrae.org/template/AssetDetail/assetid/30522



OMB A-11 language

- Added to Section 300 – Planning, Budgeting, Acquisition, and Management of Capital Assets
- Is this investment for construction or retrofit of a federal building or facility? Yes or No
- If Yes, are sustainable design practices (life cycle cost analysis, energy/water efficiency, indoor environmental quality) included in the requirement? Yes or No



OMB A-11 language

- Added to Section 25.5 – Energy and Transportation Management
- Incorporate sustainable building requirements into up front design concepts for new construction and/or building renovation
- Report any incurring or anticipated additional costs
- In many cases, sustainable design can be incorporated at no additional cost and will save money over the life of the building



NEXT STEPS

- The Interagency Sustainability Working Group is developing a common set of performance objectives essential to create high-performance sustainable buildings and to provide criteria for Federal agencies and organizations to:
 - Reduce the total ownership cost of facilities through life-cycle costing
 - Improve energy efficiency and water conservation
 - Enhance energy security
 - Provide safe, healthy, and productive built environments
 - Promote environmental stewardship



- The criteria will include five sustainable performance goals
 - Integrated Practices
 - Optimize Energy Performance
 - Protect and Conserve Water
 - Enhance Indoor Environmental Quality
 - Materials



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<http://www.cartoonbank.com>



***“I still don’t have all the answers, but I’m
beginning to ask the right questions.”***



For additional information about the
Interagency Sustainability Working Group,
please contact:

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Federal Energy Management Program

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www.eere.energy.gov/femp/techassist/sustainability.html